Amendments to Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Original) An apparatus for reducing electromagnetic interference between a pair of antennas attached to a wireless communications device, wherein the apparatus is positioned proximate to a second antenna of the pair of antennas for intercepting electromagnetic energy radiated from a first antenna of the pair of antennas during transmission of a signal, and wherein the apparatus comprises a plurality of resonant circuit elements, each being configured to resonate at or near a carrier frequency of the transmitted signal for redirecting at least a portion of the electromagnetic energy away from the second antenna, thereby reducing the electromagnetic interference at the second antenna.

2. (Original) The apparatus of claim 1, wherein combined operation of the plurality of resonant circuit elements enable the apparatus to operate over a relatively wide range of band-gap frequencies.

3. (Original) The apparatus of claim 2, wherein the relatively wide range of band-gap frequencies comprises the carrier frequency of the transmitted signal and extends approximately two to four octaves above the carrier frequency.

4. (Original) The apparatus of claim 3, wherein the relatively wide range of band-gap frequencies further comprises a second carrier frequency, which along with the carrier frequency, is used by a dual-band radio module for transmitting/receiving signals via the first antenna.

5. (Original) The apparatus of claim 4, wherein the relatively wide range of band-gap frequencies further comprises a third carrier frequency, which is used by another radio module for transmitting/receiving signals via the second antenna.

6. (Original) The apparatus of claim 3, wherein the carrier frequency of the transmitted signal is equal to about 2.4 GHz, and wherein the range of band-gap frequencies extends from about 2.3 GHz to about 9.6 GHz.

7. (Original) The apparatus of claim 1, wherein the apparatus is configured to resonate by setting various dimensions of the apparatus to some fraction of a wavelength of the transmitted signal.

8. (Original) The apparatus of claim 7, wherein a length of the apparatus is substantially equal to one-half of the transmission signal wavelength.

9. (Original) The apparatus of claim 8, wherein the plurality of resonant circuit elements form a periodic surface that is substantially less than one-tenth of the transmission signal wavelength.

10. (Original) The apparatus of claim 9, wherein a material composition of the apparatus is selected from a group of conductive materials having a relative permittivity value between about 0.0 F/m and about 1.0 F/m and a relative permeability value between about 10 H/m and about 100,000 H/m, thereby enabling the apparatus to minimize a primarily magnetic component of the radiated electromagnetic energy.

11. (Original) The apparatus of claim 10, wherein the apparatus comprises a thin strip of metal, which has been cut and folded into a plurality of rectangular elements, wherein the plurality of rectangular elements are connected to and arranged above a common reference plane by a plurality of vertical segments, and wherein the rectangular elements, vertical segments and common reference plane combine to form the plurality of resonant circuit elements.

12. (Original) The apparatus of claim 11, wherein a lower surface of the plurality of rectangular elements is separated from an upper surface of the common reference plane by a dielectric material.

13. (Original) The apparatus of claim 10, wherein the apparatus comprises a thin strip of metal, which has been cut and folded into a plurality of A-shaped elements separated by a plurality of horizontal segments, and wherein the plurality of A-shaped elements and horizontal segments combine to form the plurality of resonant circuit elements.

14. (Original) The apparatus of claim 10, wherein the apparatus comprises a thin strip of metal, which has been cut and folded into a plurality of domed segments separated by a plurality of slots, and wherein the plurality of domed segments and slots combine to form the plurality of resonant circuit elements.

15. (Original) The apparatus of claim 10, wherein the apparatus comprises an elongated metal structure, which has been molded to form a plurality of vertical elements, which are periodically coupled to a common reference plane at various locations, and wherein the plurality of vertical elements and various locations combine to form the plurality of resonant circuit elements.

16. - 24. (Canceled)